Gateways in Power BI

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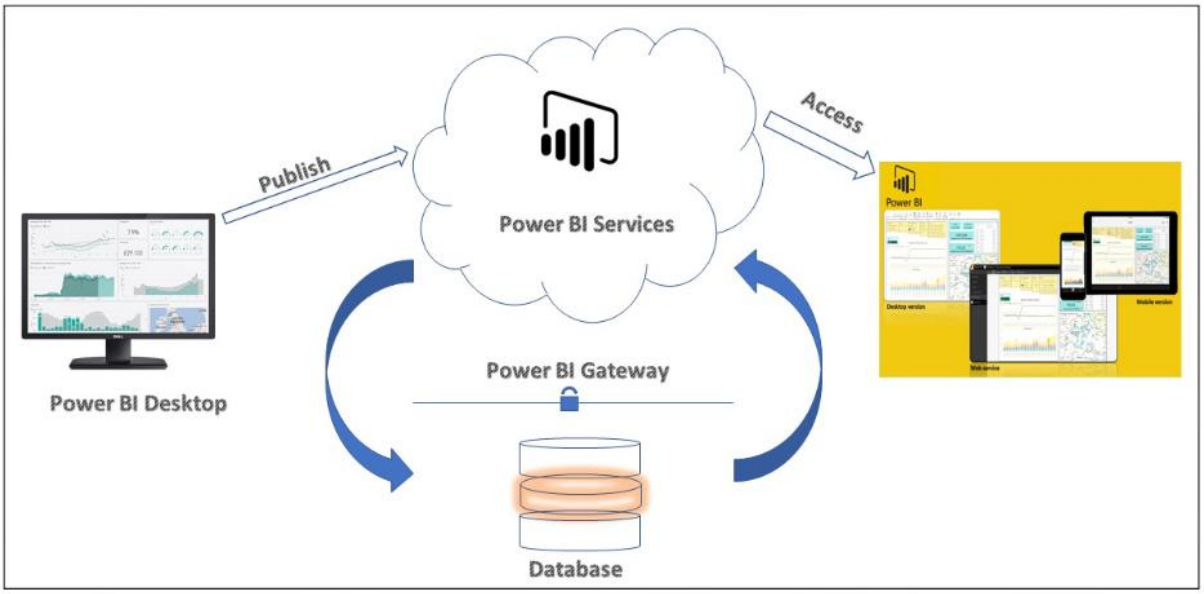
Purpose

This document covers the concept of “Gateways” in Power BI. This is high level document and assumes that resource has basic knowledge of Power BI Concepts. In this blog, we will mainly focus on “On-premises mode” gateway.

What is Gateway?

Gateway is an application that creates the link between Power BI cloud-based services and the datasource/database located on-premises. It can be installed as service on a machine (or on any server in the local domain).



Gateway Architecture

How Gateway helps in Power BI?

The gateway acts as a bridge which provides connection between database and Power BI services to transfer fast and secure data. It facilitates Power BI Desktop users with easy access to shared data source connections and provides security administration which lets organizations to control which users can access these shared data sources. Moreover, it can also be used for schedule refresh of data which we have imported into Power BI.

Requirements to install gateway

Minimum:

1) .NET 4.6 Framework

2) 64-bit version of Windows 7 / Windows Server 2008 R2 (or later)

Recommended:

1) 8 GB Memory

2) 8 Core CPU

3) 64-bit version of Windows 2012 R2 (or later)

Types of Gateway

Gateway comes in two different modes which are explained as follows:

Personal mode gateway – This gateway is designed to be setup for a single user and not for the team which allows the user to connect to sources and can't be shared with others. It works on a desktop computer or laptop and can only be used with Power BI. This gateway is ideal for scenarios where a report developer who creates reports wants to run his/her reports and doesn't need to share the data sources with others.

On-premises mode gateway – This gateway is built for team development which allows multiple users to connect to multiple on-premises data sources. It only supports Power BI but also PowerApps, Azure Analysis Services, Microsoft Flow, and Azure Logic apps, all with a single gateway installation. Direct query and Live connection are also supported with this gateway. It is well-suited to complex scenarios with multiple developers accessing multiple data sources.

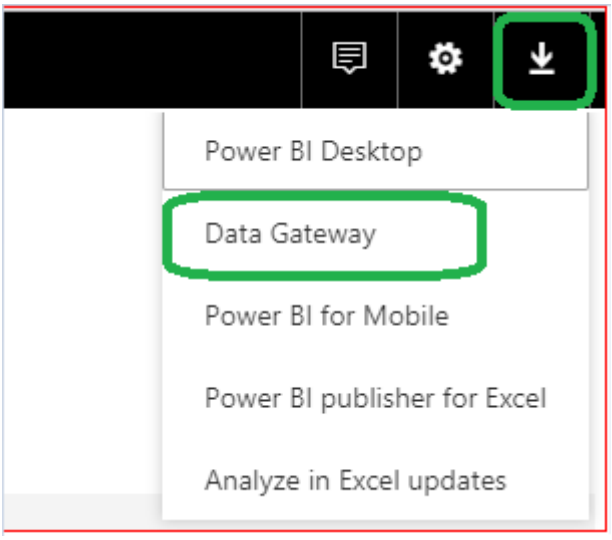
How to install a Gateway?

First of all, we need to download Gateway application before installation. We can download this from below link :

https://powerbi.microsoft.com/en-us/gateway/

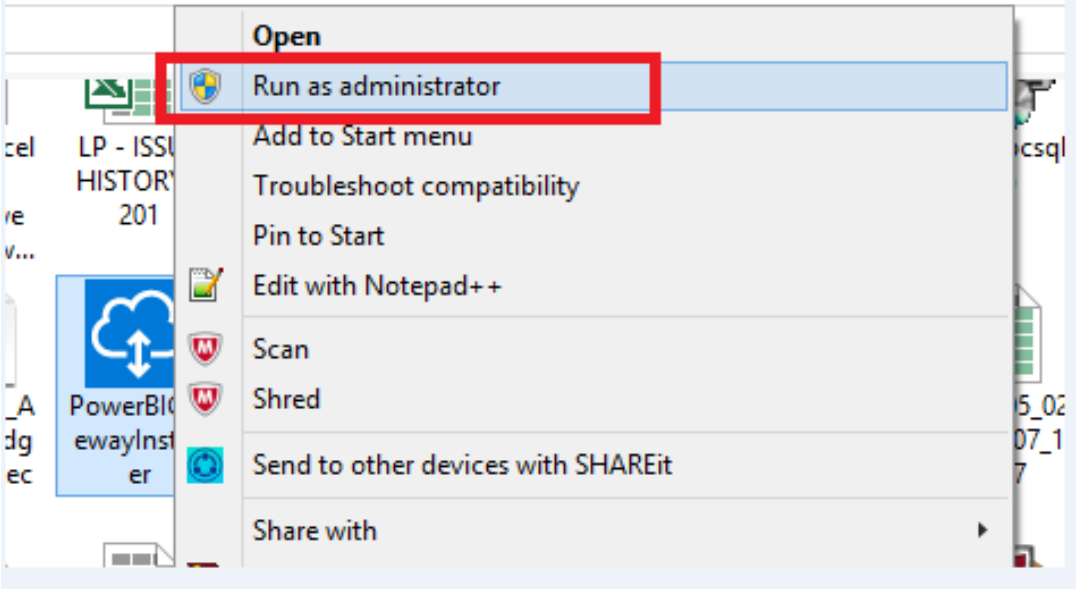
Or we can find the link when we logged in to Power BI service as shown in below image.

Location: Download<Data Gateway

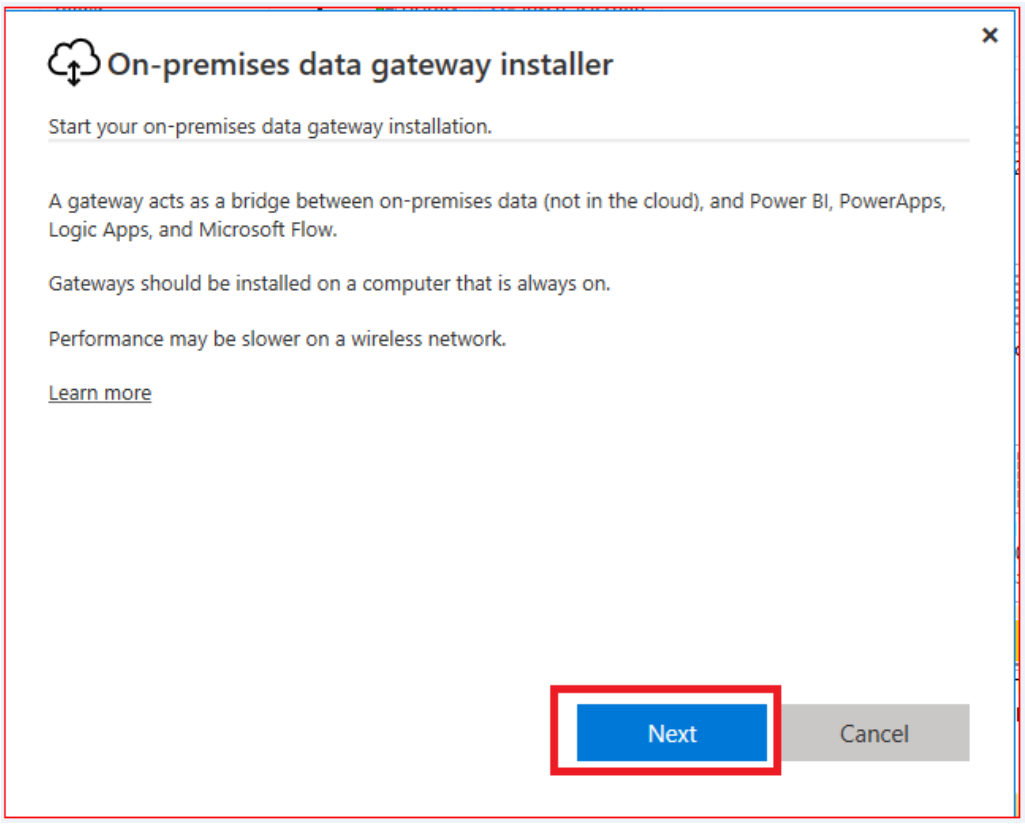


Below are the steps which we need to follow to install gateway:-

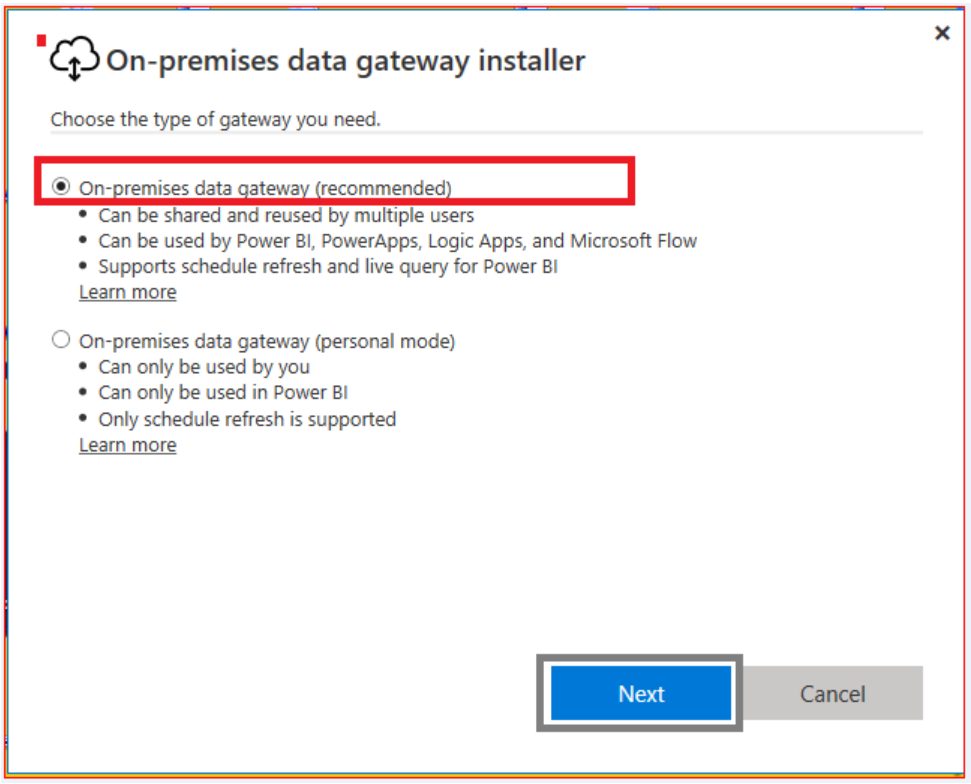
1. Right click on the downloaded set up and run as Administrator.



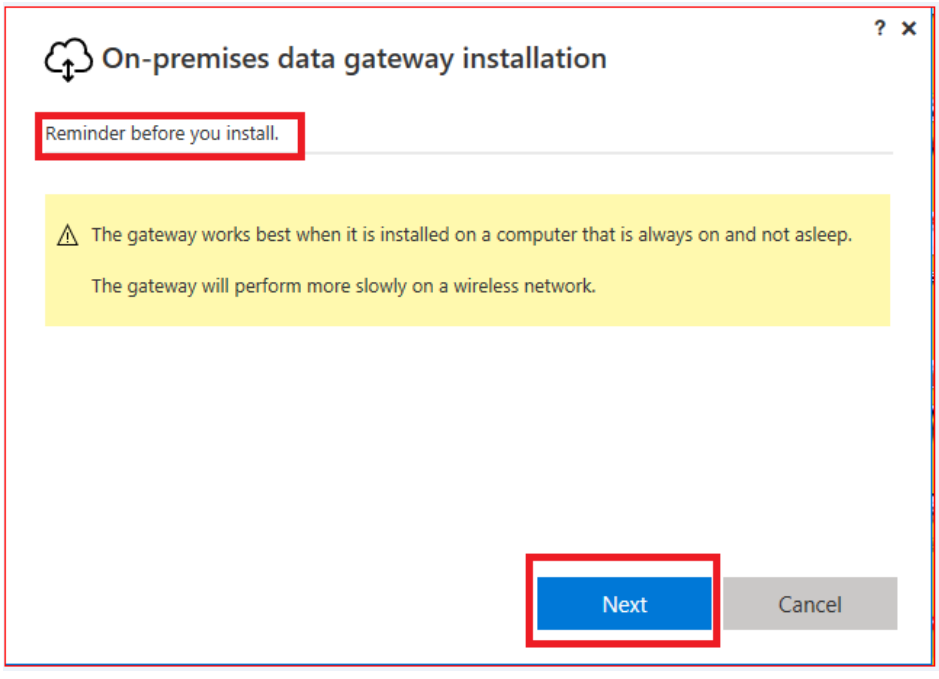
2. Click on Next button on the below populated screen.



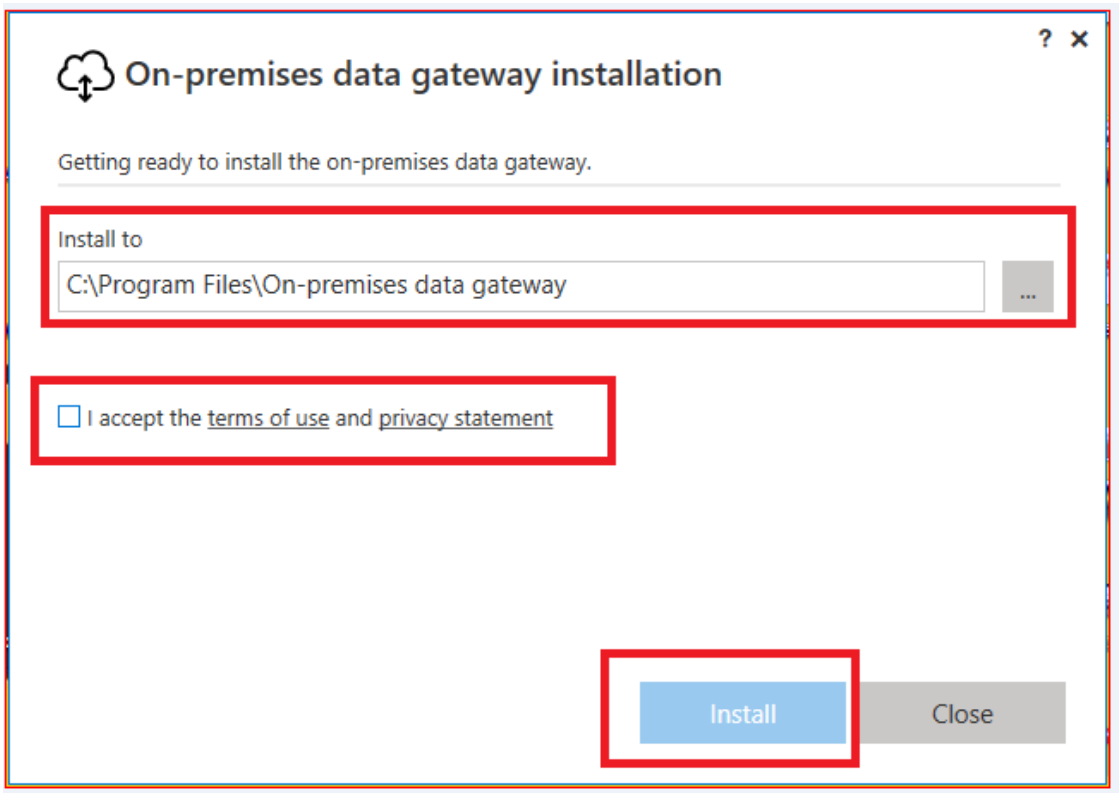
3. Select “On-premises data gateway (recommended)” option and click on Next button.

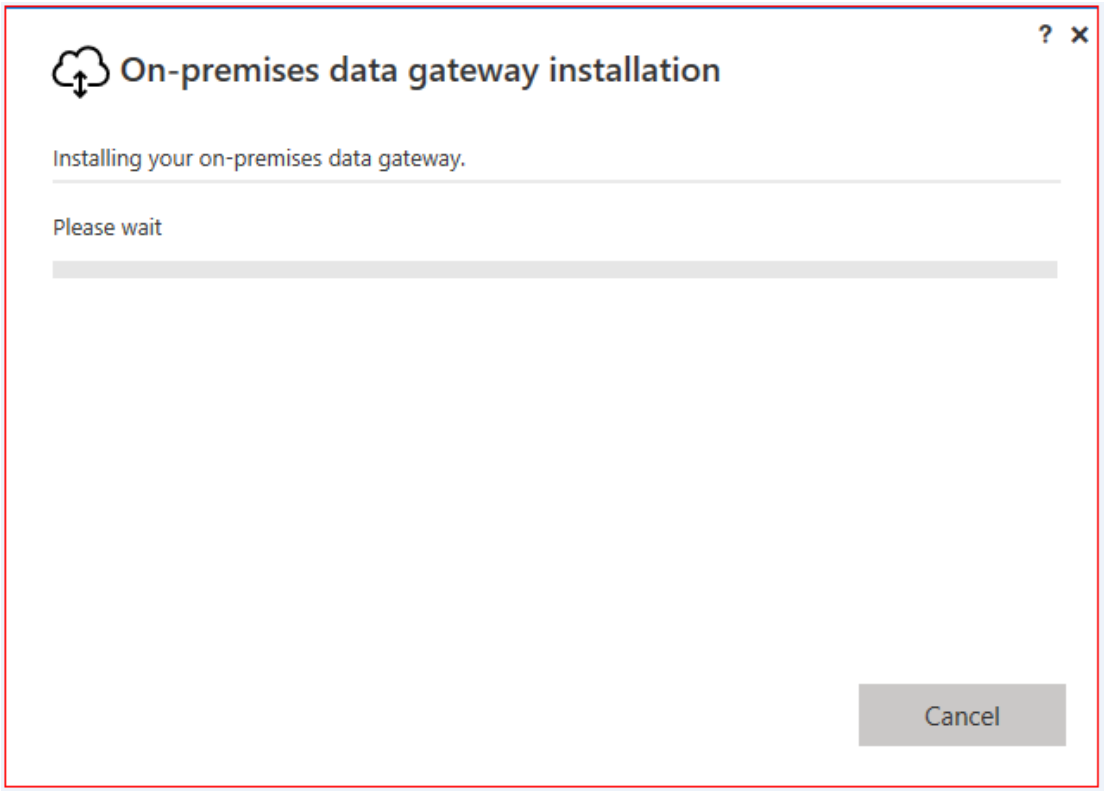


4. Then again click on Next button on the “Reminder” screen.

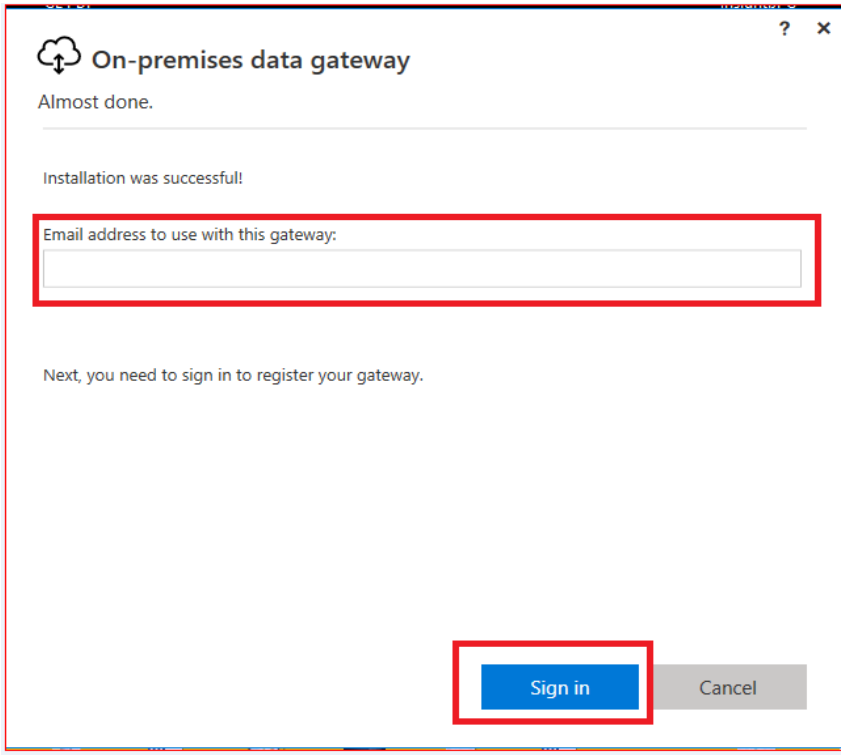


5. After this, tick the checkbox to accept the “terms and conditions” and click on “Install” button to complete the installation process.

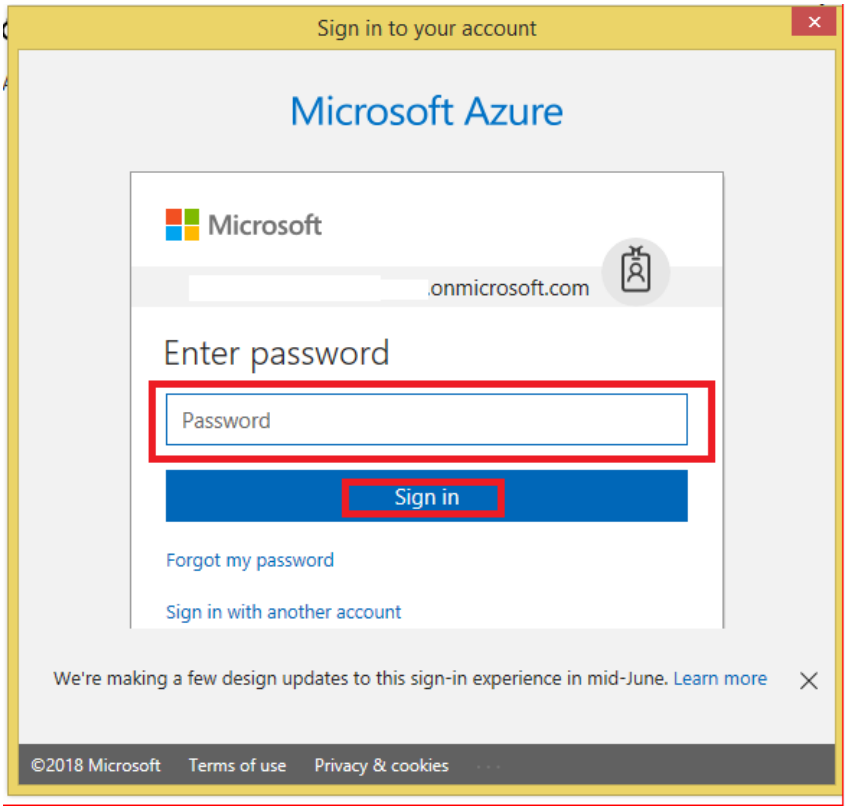




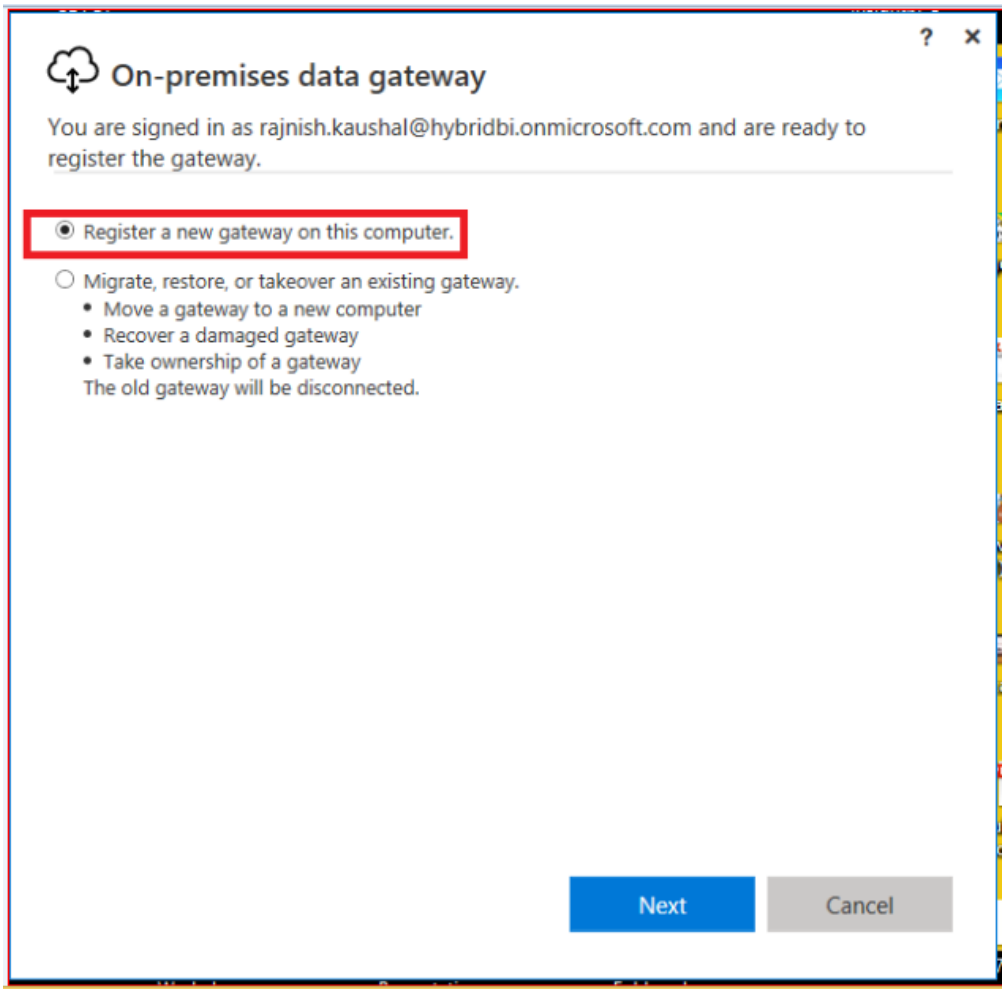
6. Now it prompts us to enter the email address. Please enter the same address which we use to log into Power BI service and click on “Sign in” button.



6. Enter the password and again click on “Sign in” button.

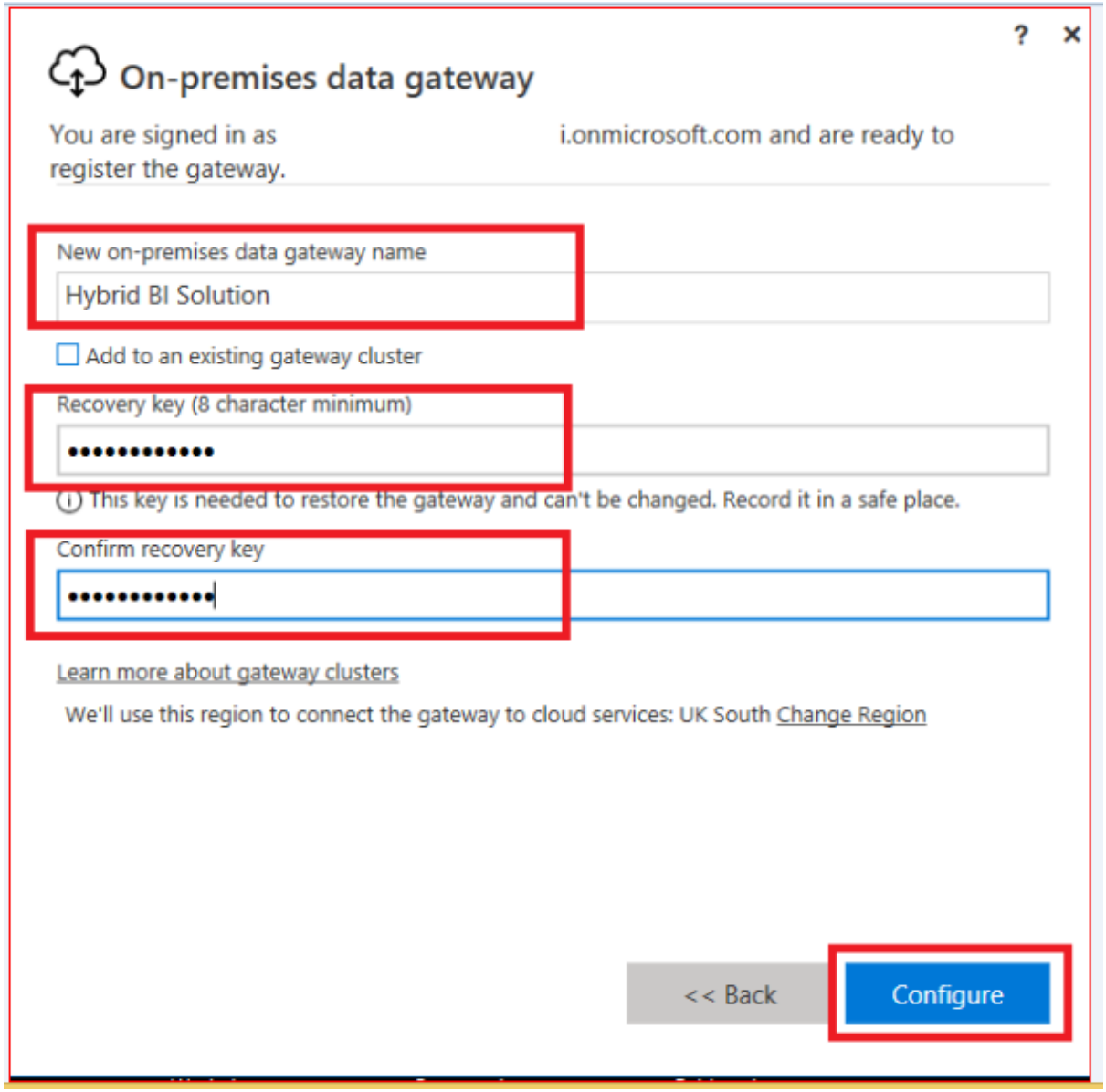


7. As we are installing gateway for the first time so select below highlighted option and move to next screen by clicking on “Next” button.

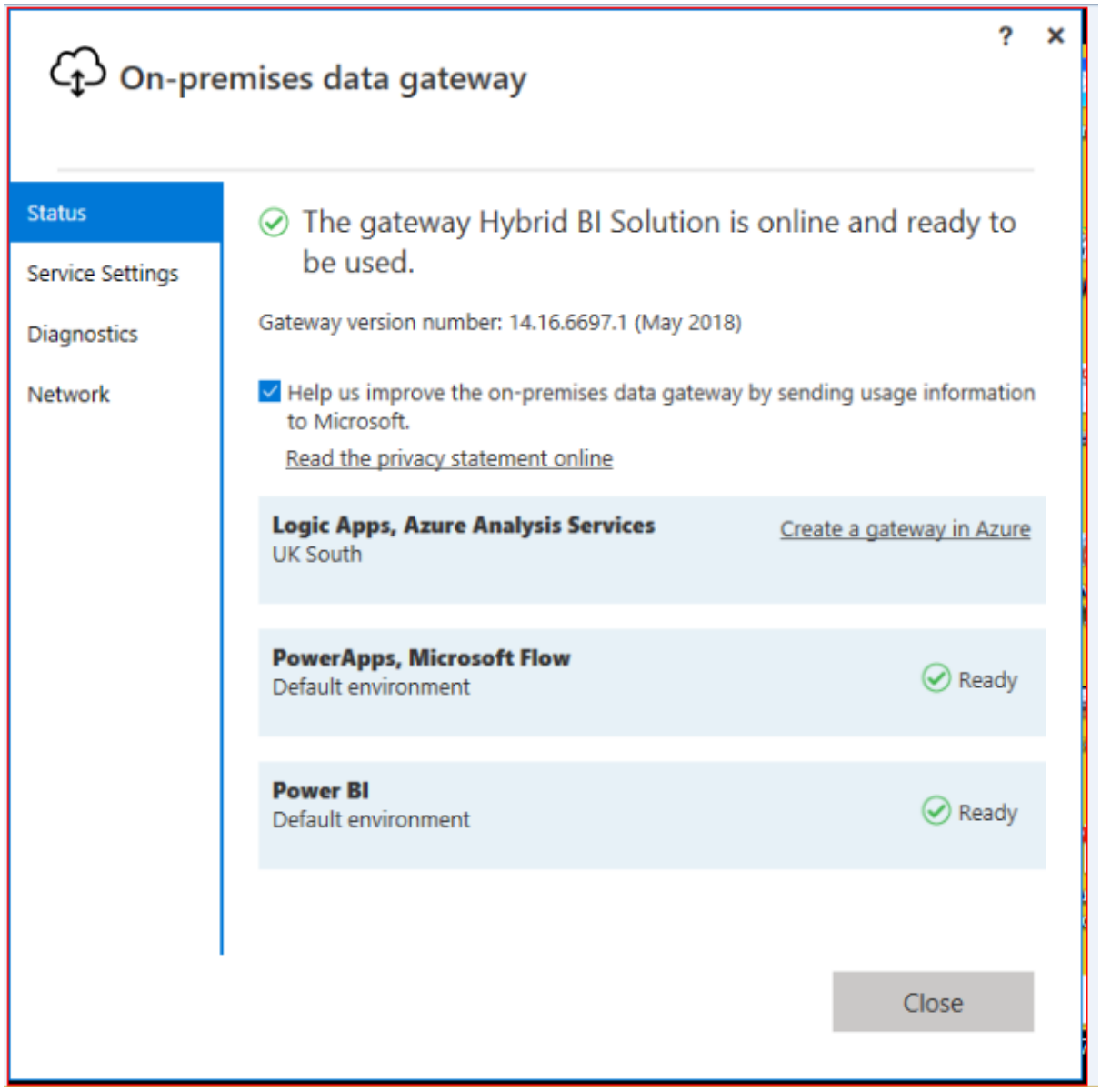


We can also migrate or restore an existing gateway by selected second option.

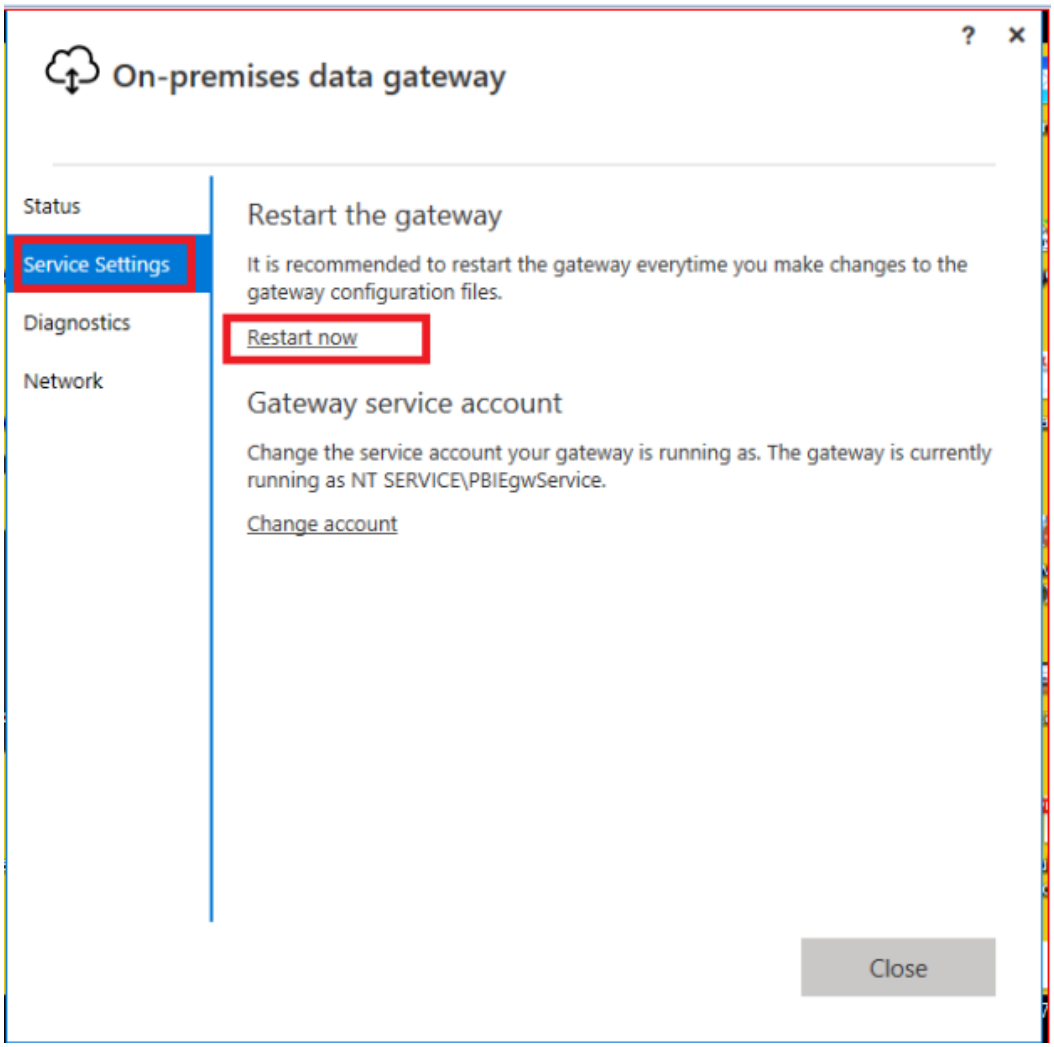
8. Please give appropriate name to the gateway and give recovery key to migrate or reinstall the same gateway on another machine. Make sure the recovery key should be secured and remembered.

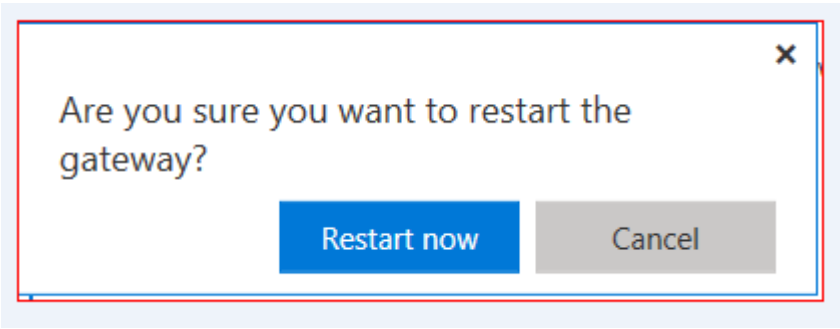

On-premises data gateway
You are signed in as
i.onmicrosoft.com and are ready to
register the gateway.
New on-premises data gateway name
Hybrid BI Solution
Add to an existing gateway cluster
Recovery key (8 character minimum)
This key is needed to restore the gateway and can't be changed. Record it in a safe place.
Confirm recovery key
Learn more about gateway clusters
We'll use this region to connect the gateway to cloud services: UK South Change Region
<< Back
Configure

9. Now the gateway has been installed successfully.



Sometimes if we need to restart the gateway then open the “On-premises data gateway” application, go to “Service Settings” and click on “Restart Now” link to restart the gateway.

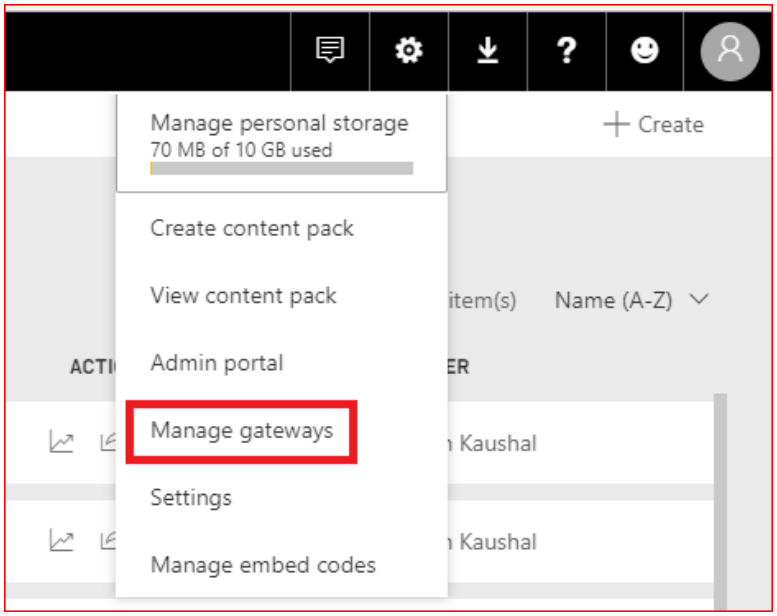

On-premises data gateway
Status
Service Settings
Diagnostics
Network
Restart the gateway
It is recommended to restart the gateway everytime you make changes to the gateway configuration files.
Restart now
Gateway service account
Change the service account your gateway is running as. The gateway is currently running as NT SERVICE\PBIEgwService.
Change account
Close


Are you sure you want to restart the gateway?
Restart now
Cancel

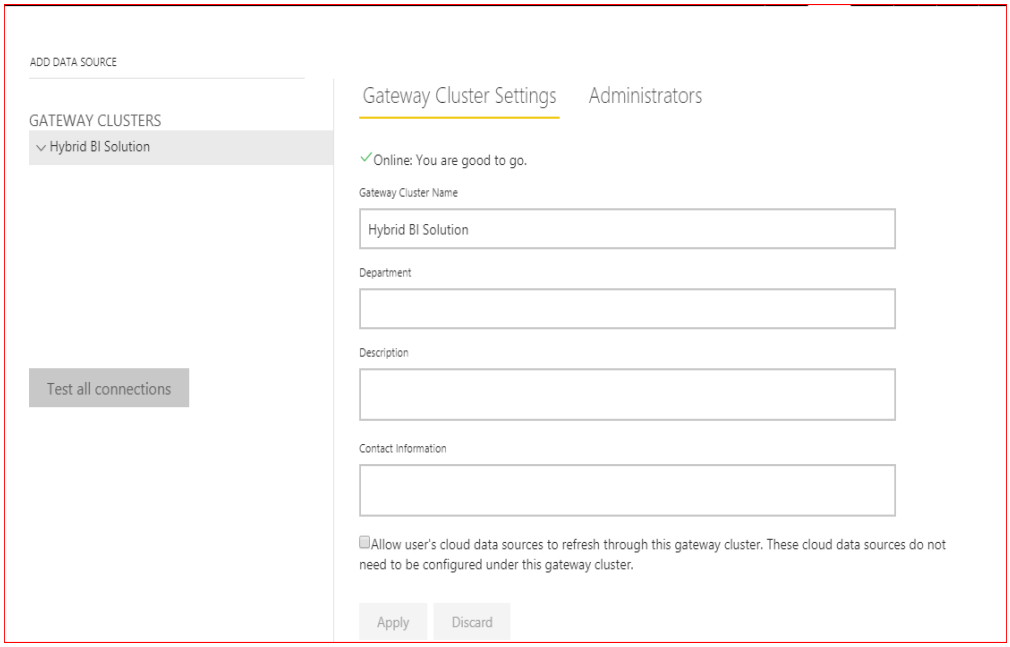
How to configure a Gateway?

As we have installed the gateway on our machine/server, now we want to configure the gateway with data source to get updated data each time. Please follow the below steps:-

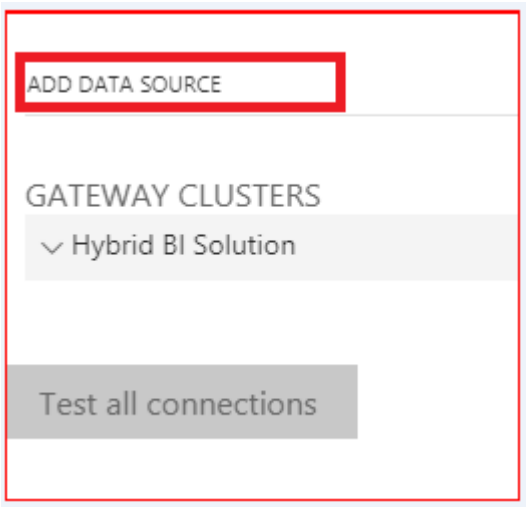
1. Go to Power BI Services and click on "Manage gateways" as highlighted below.



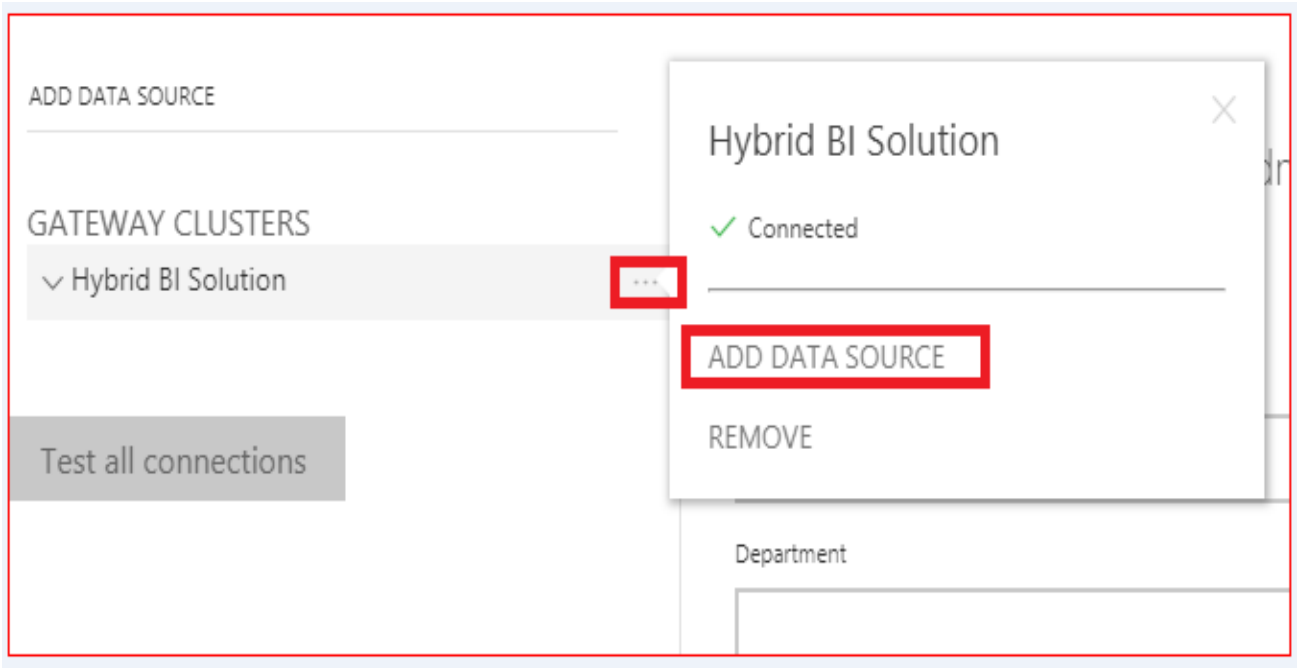
2. After clicking on "Manage gateways", we can see the gateway is connected to Power BI Services.



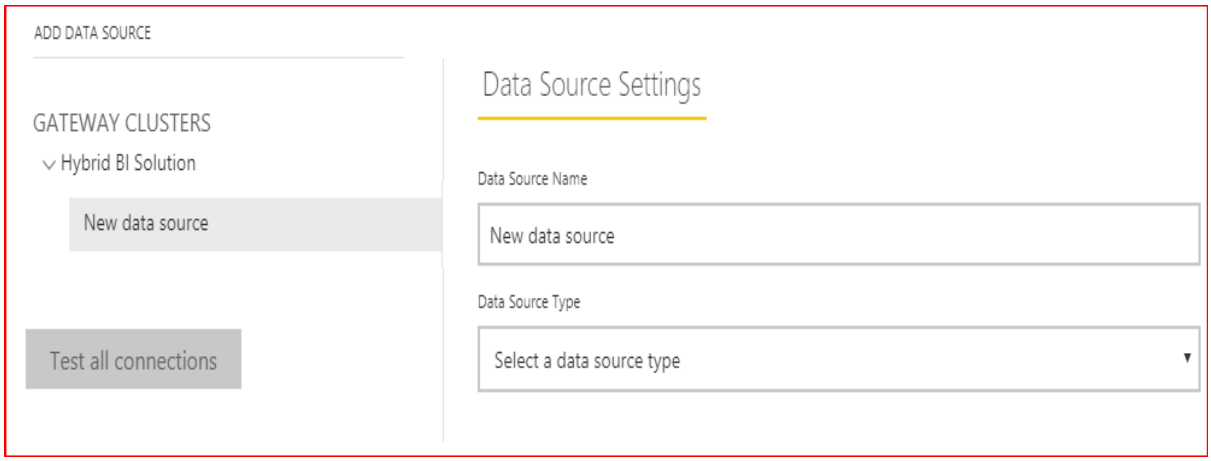
3. Now click on “ADD DATA SOURCE”.



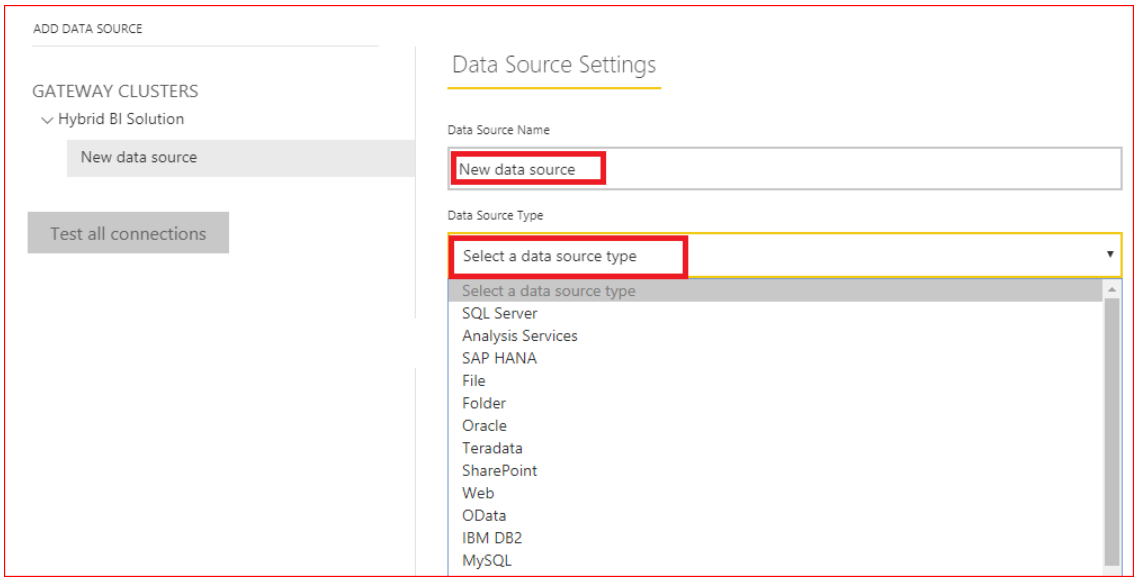
We can also select this option by clicking on ellipses as shown in below image.



4. After clicking on “ADD DATA SOURCE”, below window will get opened.



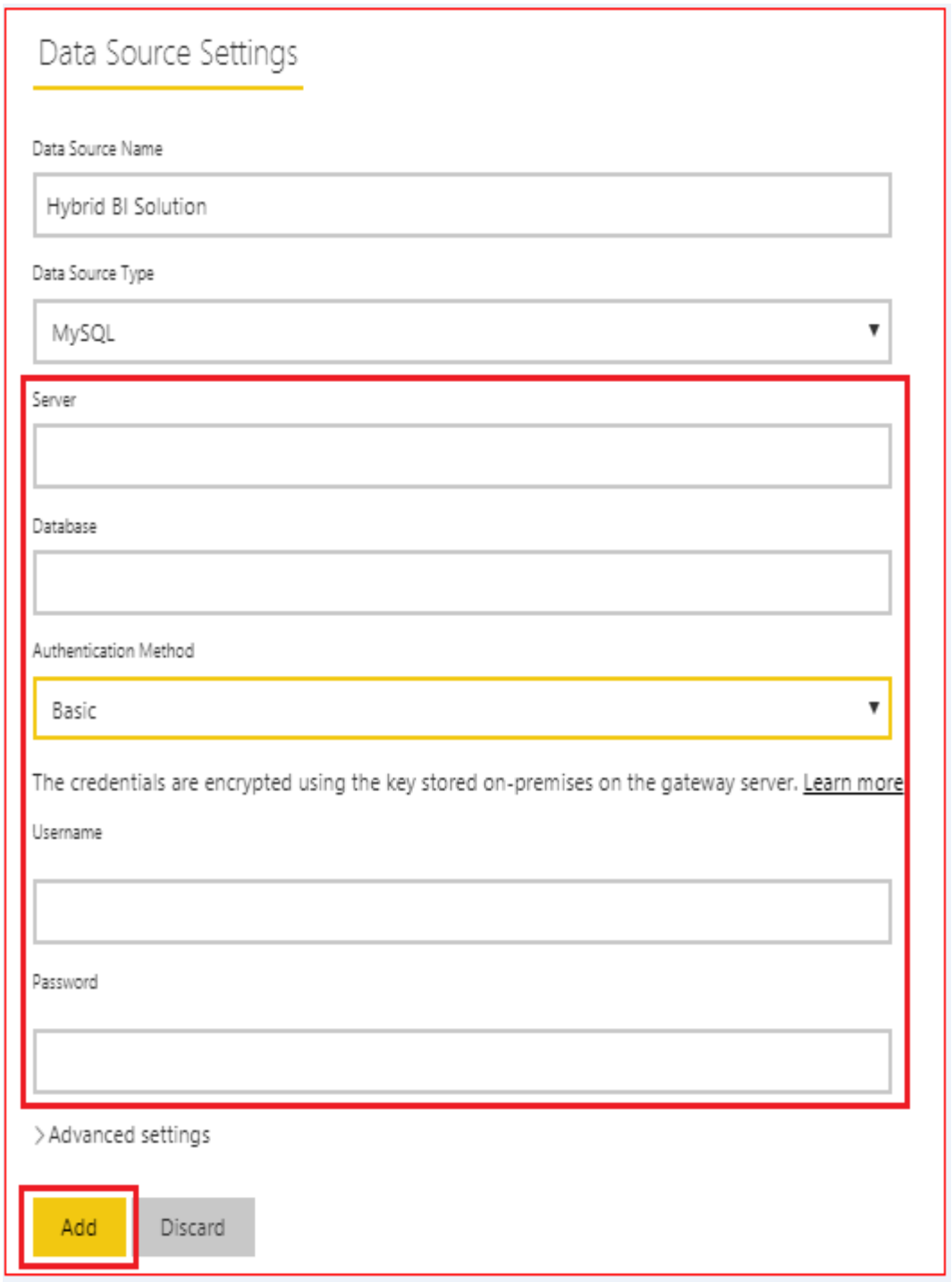
5. Give suitable name to data source and select the type of data source from drop down list.



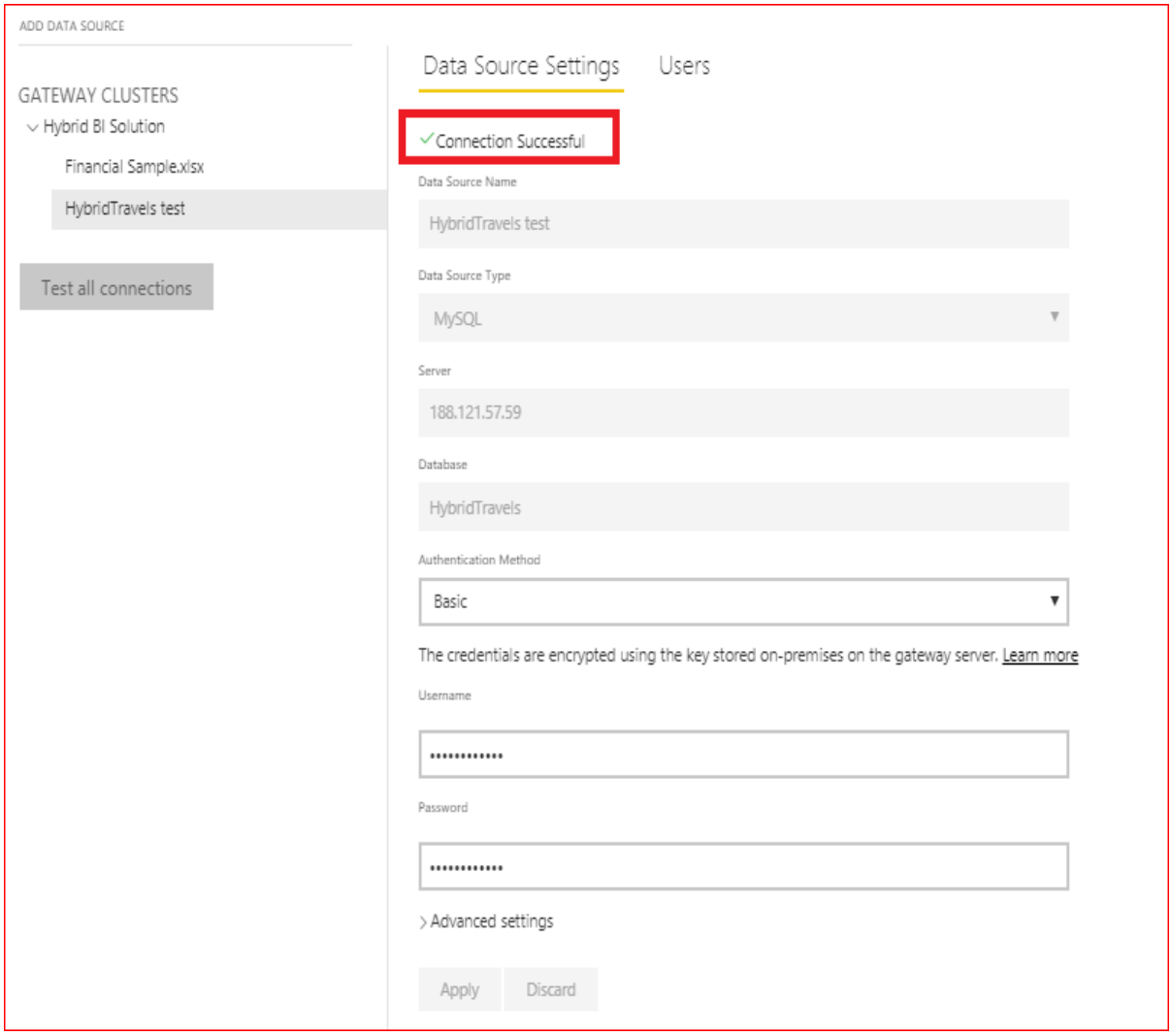
6. Below is the list of data sources which are available in Power BI.

Data source
Analysis Services Tabular
Analysis Services Multidimensional
File
Folder
IBM DB2
IBM Informix Database
IBM Netezza
Impala
MySQL
OData
ODBC
Oledb
Oracle
PostgresSQL
SAP BW
SAP HANA
SharePoint list (on-premises)
Snowflake
SQL Server
Sybase
Teradata
Web

7. According to the selection of Data Source Type, different fields will be populated. For instance, we have selected “MySQL” data source from the dropdown list so we need to fill the information of below highlighted fields and then click on “Add” button.

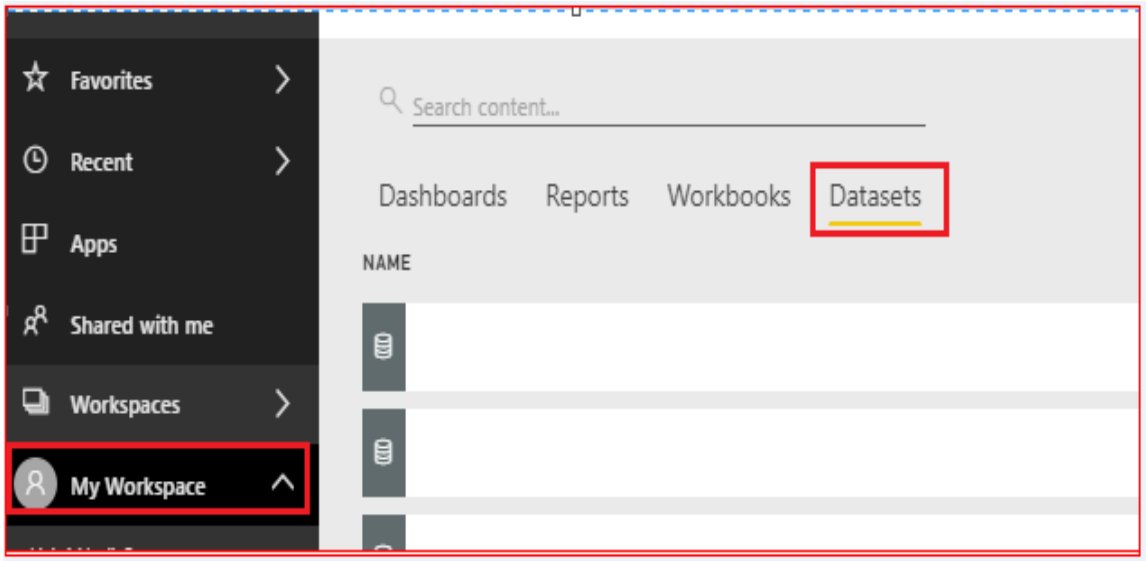


8. After this, we can see that database has been connected with Power BI services via gateway. Below image is showing the same.



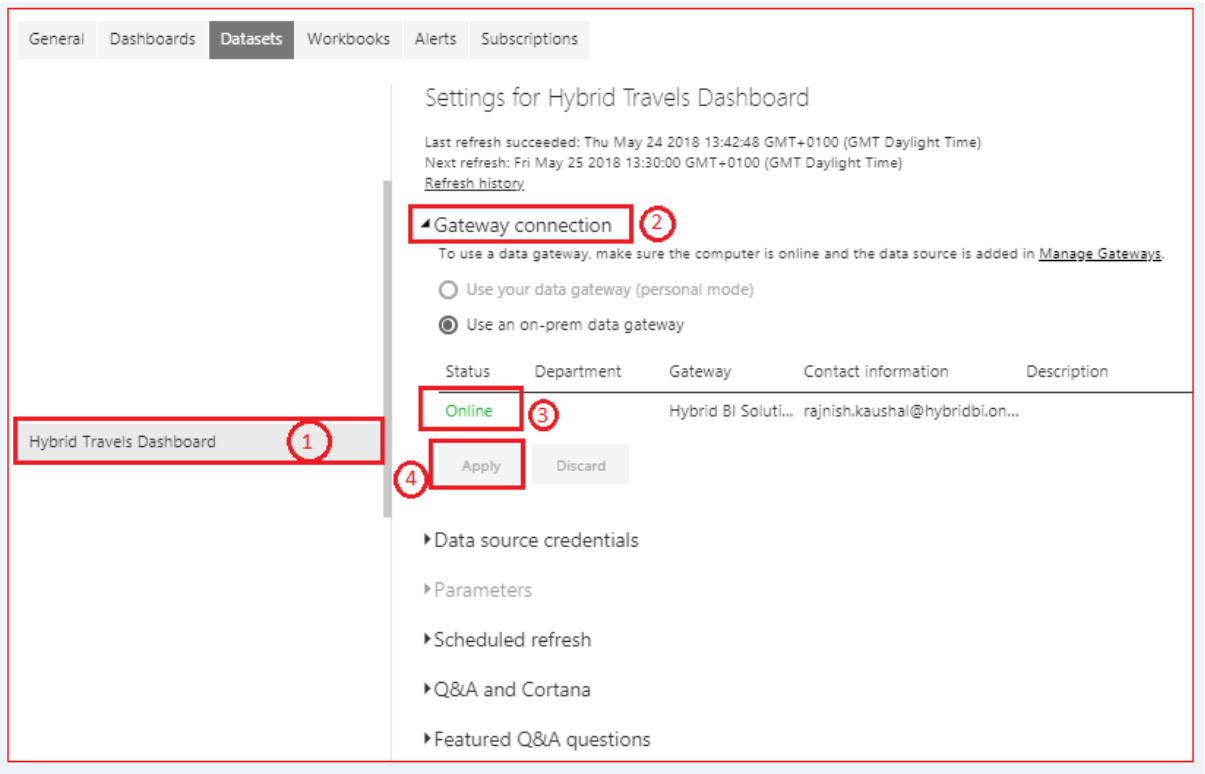
Please note: *If we have multiple data sources, then we repeat this exercise for each and every data source separately.*

9. Now assign published dataset (report which is published on Power BI services) to the gateway by clicking on “My workspace” option and go to “Datasets” tab.

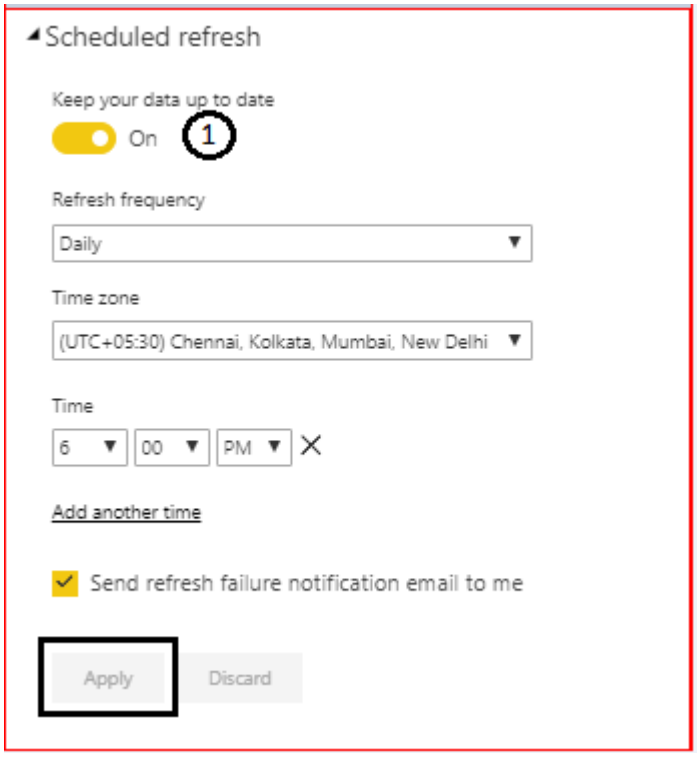


10. Click on “Schedule refresh” icon under section “Actions” present across the dataset as highlighted below:

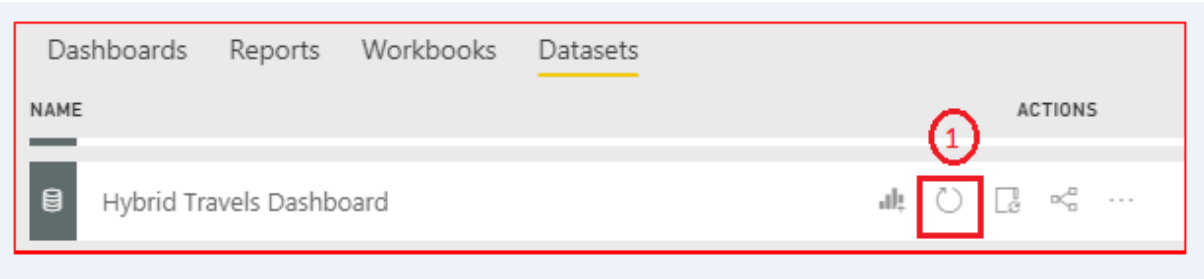
11. If gateway has already configured with data source which is used in the dataset then it will be seen under the “Gateway connection”. Select the same and click on Apply button.



In this way, published dataset is assigned to gateway. Now we can set the scheduling of the dataset to refresh the data on daily basis. Below image is highlighting the steps to do the same.



We can also manually refresh the dataset by clicking on “Refresh now” icon present besides the “Schedule refresh” icon.



Additional Comments

- Gateway should be installed on a machine that can be left running all the time.
- Gateway should not be installed on a machine which is connected through a wireless network as it will work more slowly in a wireless network.
- We can install multiple On-premises data gateways on different computers and manage them all from same Power BI gateway management interface.